

PATENT COOPERATION TREATY

Translation

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 15031	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP02/07376	International filing date (day/month/year) 22. 07. 2002	Priority date (day/month/year) 13. 03. 2002
International Patent Classification (IPC) or national classification and IPC  Int. Cl <sup>7</sup> G01N 22/02		
Applicant  BURN-AM Co., Ltd.		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of _____ sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input checked="" type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement;</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand  02. 10. 2003	Date of completion of this report  07. 04. 2004
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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP02/07376

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed.
- ☐ the description:  
pages \_\_\_\_\_, as originally filed.  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the claims:  
pages \_\_\_\_\_, as originally filed.  
pages \_\_\_\_\_, as amended (together with any statement under Article 19  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
pages \_\_\_\_\_, as originally filed.  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed.  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b))
- ☐ the language of publication of the international application (under Rule 48.3(b))
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3)

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ Furnished subsequently to this Authority in written form.
- ☐ Furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17)

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## IV. Lack of unity of invention

1. In response to the invention to restrict or pay additional fees the applicant has:

- ☐ Restricted the claims.  
☐ Paid additional fees.  
☐ Paid additional fees under protest.  
☒ Neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.  
☒ not complied with for the following reasons:

Section 1.

Claims 1-3 and 6-16 describe that an underground all around an underground pipe is inspected by rotating an antenna.

Section 2.

Claims 4 and 5 describe that the antenna is liftably held without installing an antenna rotating mechanism, and only an underground on the upper side of the underground pipe is inspected.

Section 3.

Claims 17-24 relate to a mechanism which does not rotate nor liftably hold the antenna, but moves a searching part itself.

Accordingly, this International Application does not relate to a group of inventions so linked as to form one invention or a single general inventive concept and, therefore, does not fulfill the requirement of unity of inventions.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report.

- ☐ all parts.  
☒ The parts relating to claims Nos. 1-3, 6-16

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP02/07376

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****2. Statement**

Novelty (N)	Claims	1-3, 6-16	YES
	Claims		NO
Inventive step(IS)	Claims	7, 13	YES
	Claims	1-3, 6, 8-12, 14-16	NO
Industrial applicability(IA)	Claims	1-3, 6-16	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)**

Document 1: JP 8-178907 A (Sekisui Chemical Co., Ltd.), 12 July, 1996  
Document 2: JP 3-235084 A (Katsutoshi SAKAI), 21 October, 1991  
Document 3: JP 10-2969 A (Fuji Chichu Joho Kabushiki Kaisha), 06 January, 1998  
Document 4: JP 64-54216 A (NKK Corp.), 01 March, 1989  
Document 5: JP 4-136703 A (NKK Corp.), 11 May, 1992  
Document 6: JP 2-59649 A (Kabushiki Kaisha Kido Gijutsu Kenkyusho), 28 February, 1990  
Document 7: JP 9-61421 A (Japan Sewage Works Agency), 07 March, 1997  
Document 8: JP 9-254782 A (Sapporo-shi), 30 September, 1997

**Regarding Claim 1 / Documents 1, 2 /**

The cited document 1 in International Search Report describes a device for inspecting the inside of an underground pipe, which is provided with a cavity sensor for exploring cavities around the underground pipe, the device comprising: a self-propelled vehicle, which moves inside the pipe line of the underground pipe; an on-ground control means to control the movement of said self-propelled vehicle; an means to process the measured data; and a means to rotate said cavity sensor along the inner peripheral surface of said underground pipe.

Moreover, the document 1 describes the use of cavity sensor employing electromagnetic wave, and it is conventionally well-known to send electromagnetic wave using an antenna (e.g., see the cited document 2 in the International Search Report). Therefore, it is easy for the skilled in the art to employ the constitution using an antenna as a cavity sensor in the invention which is described in the document 1 so as to make an invention concerning to Claim 1.

**Regarding Claim 2 / Documents 1, 2 /**

The document 1 describes the mechanism to adjust the height of the cavity sensor.

Accordingly, the invention concerning Claim 2 is easily conceived and obtained by the skilled in the art from the invention which is described in the document 1 and above-mentioned well-known art.

**Regarding Claim 3 / Documents 1, 2 /**

The document 1 also describes the three dimensional display (equivalent to the two dimensional display in the plural directions) of the measured data. Moreover, it is the conventionally well-known art to provide a means to detect the location of the antenna as the description in the document 2.

## Supplemental Box

Second page of V.

Regarding Claims 6, and 8 / Documents 1-3 /

In the filed of the art of inspecting the inside of an underground pipe employing electromagnetic wave, it is the conventionally well-known art to mount a camera on an underground pipe line internal self-propelled vehicle and to inspect the internal state of the pipe line by pictures along with the cavity inspecting (e.g., see the cited document 3 in the International Search Report). And in the invention which is described in document 1, particular difficulty is not identified in employing above-mentioned well-known art.

Accordingly, the invention concerning Claims 6, and 8 is easily conceived and obtained by the skilled in the art from the invention which is described in the document 1 and above-mentioned well-known art.

Regarding Claim 9 / Documents 1, 2, 4, and 5 /

In the filed of the art of inspecting the inside of an underground pipe, the art to add an encoder for measuring the travel distance to a self-propelled vehicle is conventionally well-known (e.g., see the cited documents 4, and 5 in the International Search Report). And in the invention which is described in document 1, particular difficulty is not identified in employing above-mentioned well-known art. Moreover, the act or effect specific to the present invention by employing an infrared encoder is not identified.

Accordingly, the invention concerning Claims 9 is easily conceived and obtained by the skilled in the art from the invention which is described in the document 1 and above-mentioned well-known art.

Regarding Claim 10 / Documents 1-3, and 6 /

As the art to inspect concrete deterioration of an underground pipe, the art of inspection by mounting a means for spraying reagent, and a means for observation of different color change according to the presence or absence of deterioration on a self-propelled vehicle is conventionally well-known (e.g., see the cited document 6 in the International Search Report). Also, in inspection art, it is generally conducted to inspect the object manifoldly using a number of inspecting method. And in the invention which is described in the document 1, it is easily conceived and obtained by the skilled in the art to conduct above-mentioned well-known deterioration inspection adding to the cavity inspection of an underground pipe.

Accordingly, the invention concerning Claim 10 is easily conceived and obtained by the skilled in the art from the invention which is described in the document 1 and above-mentioned well-known art.

Regarding Claims 11, and 12 / Document 1-3, 6, 7, and 8 /

As the art to inspect deterioration of concrete, the art to judge the presence or absence of deterioration caused by sulfuric acid by color reaction of reagent is conventionally well-known (e.g., see the cited document 7 in the International Search Report).

Also, in the art of inspecting concrete deterioration in an pipe line, the art to add a sensor for detecting toxic gases such as hydrogen sulfide to an inspecting equipment is conventionally well-known (e.g., see the cited document 8 in the International Search Report).

Accordingly, the invention concerning Claims 11, and 12 is easily conceived and obtained by the skilled in the art from the invention which is described in the document 1 and above-mentioned well-known art.

Regarding Claims 14-16, / Documents 1-6 /

The subject matter of the art which is defined in Claims 14 ~ 16 is the conventionally well-known art as already reviewed.

Accordingly, the invention concerning Claims 14 ~ 16 is easily conceived and obtained by the skilled in the art from the invention which is described in the document 1 and above-mentioned well-known art.

Regarding Claims 7, and 13

The invention concerning Claims 7, and 13 is not described, and is not obvious to the skilled in the art.